Import Q1 from Laptop

2) See attached Diagrams:

3400 Project ER Diagram

3400 Project Class Diagram

3)

The database minimizes redundancy and is in 3rd Normal Form. It is in 3NF because:

All attributes are scalar values.

Entries in a column are of the same type.

Rows all have a unique identifier, which is underlined in the schema above.

All non key columns are dependent on the key which is underlined above.

All fields can only be determined by the key and no other single column.

4)

The data is also in BCNF. The reason for this is for any dependency that would be A 🡪 B, A would be a super key. The database benefits from being in BCNF because there is no ambiguity between what entities would have the attributes, improving the integrity of the data, and reducing the redundancy. The only disadvantage would be the database would be slowed down but the database is likely not large enough to be affected, mitigating the disadvantage to BCNF.

Import Q5 from Laptop

5)

SQL code to make new Database:

CREATE DATABASE physicianRegistry;

CREATE TABLE hospital (hospitalIdentifier varchar(30), hospitalPhone varchar(30)) IN physicianRegistry;

CREATE TABLE clinic (clinicName varchar(30), clinicPhone varchar(30), BANumber varchar(30)) IN physicianRegistry;

CREATE TABLE physicians (firstName varchar(30), lastName varchar(30), practitionerID varchar(30), specialty varchar(30), worksAt varchar(30), retired Boolean) IN physicianRegistry;

CREATE TABLE nurses (firstName varchar(30), lastName varchar(30), RNNumber varchar(30), worksAT varchar(30)) IN physicianRegistry;

CREATE TABLE patients (firstName varchar(30), lastName varchar(30), healthcardNumber varchar(30), familyDoctor varchar(30)) IN physicianRegistry;

CREATE TABLE prescription (prescriptionCode varchar(30), medicationName varchar(30), dosage varchar(30), prescriber varchar(30)) IN physicianRegistry;

Import Q5 from Laptop

6)

Import Q6 from Laptop

7)

Import Q7 from Laptop

8)

The issues the database might encounter are due to lack of memory and it would be dealing with a province wide client base. The ways to make the database more efficient would be to move from a local server to a could based one. This would help the database with transmission of data and make clients have the same access to it regardless of distance, mitigating the issue with it being a province wide service. The way to deal with memory is to run it on a more common version of a server based application. The one I would suggest would be windows server 2012, as I have personal experience with it, and run sql server from that, connecting to the database.

If you are going to implement a could based server for it, it is always very smart to have a local backup prepared for it and have it update at night semi regularly.

Something else to note. It is illegal to discard medical information, so any information that would be provided by a physician would have to be retained after he is gone. In the future something that could be made to improve the database is add a new table which would store the information of retired physicians. This would allow there to be less information stored in the physicians table at any given time.

9)

Script?

10)

Import Q10 from Laptop